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NAVY DEPARTMENT

BUMED NEWS LETTER

a digest of timely information

Editor - Captain F. W. Farrar. (MC). U.S.N.

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Circular Letters:

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Sequential Analysis: A new statistical procedure called "Sequential Analysis" has been developed which will be found of value in research in the field of medicine. By sequential analysis is meant any statistical test procedure which gives a specific rule at any stage of the experiment for making one of the following three decisions:

1. To accept the hypothesis under test as established by data on hand.
2. To reject the hypothesis as disproved by data on hand.
3. To continue taking observations for the reason that more primary data are required.

The hypothesis may take various forms such as: that two processes give the same result or substantially different results; that two drugs give the same or substantially different results; that two tests give the same or different results; that the percentage of relief of pain by one therapeutic technic is the same as or different from that by another procedure or no therapy at all; that two materials differ in their strength or hardness or variability or wearability, etc.; that a given batch of material or chemical products or instruments is within tolerance; or the hypothesis may state the proportion of defects in a lot which is to be accepted or rejected, etc.

The sequential plan to accomplish this requires the investigator to formulate or obtain the following:

1. A hypothesis and an alternative hypothesis between which he wishes to decide.
2. The risk of rejecting the hypothesis when it is true and the risk of accepting the hypothesis when the alternative is true.
3. The sample performance at each sample size or at each stage of the data that is to be used to decide between the first hypothesis and the alternative hypothesis.

The purpose of a sequential test is to choose between two hypotheses at the smallest value of sample size for which the risk of error will not exceed a preassigned probability. If one is willing to run a small risk of rejecting one hypothesis when it is true and a small risk of accepting the same hypothesis when the alternative is true, then for all values of the accepted small risks, sequential analysis will decide between the two hypotheses with smaller average samples than will the standard method. Since the chief merit of sequential analysis is that on the average it requires smaller samples, or results in less inspection of material being examined for acceptance or rejection, the important decision to use sequential analysis will be determined by the degree of economy to be gained in respect to:

1. Time saved by shorter experimentation or testing.
2. Saving in material and equipment.
3. Saving in cost of additional cases or samples.

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Sequential analysis requires that the investigator record and consider his data and in some cases make simple calculations after each test or observation in order that he may determine if he has enough evidence one way or the other to terminate the study. From some types of studies or experiments this procedure of alternate inspection and decision-making may be more troublesome than other methods in which a decision is made after a sample or a collection of data of a determined size has been obtained.

Specifically, it is the economic advantage of sequential analysis which must be considered when using it.

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Note: In September 1943, the Statistical Research Group, Columbia University, submitted a report to the Applied Mathematics Panel, National Defense Research Committee, by A. Wald, entitled "Sequential Analysis of Statistical Data". This report is designated as SRG Report 75, AMP Report 30.1, Restricted, and gives the mathematical developments on which sequential analysis is based. For those who wish to use sequential analysis but who are not concerned with its mathematical development, a manual consisting of six sections has been prepared. Each section has been made as nearly self-contained as possible. These six sections are as follows:

1. "Sequential Analysis in Inspection and Experimentation".

2. "Sequential Analysis when the Result of a Single Observation is a Classification as Good or Bad and when the Result of the Test is Acceptance or Rejection".

3. "Sequential Analysis when the Result of a Single Observation is a Classification as Good or Bad and when the Result of the Test is a Decision between Two Methods or Products".

4. "Sequential Analysis when the Quality being Tested is Measured and when the Question is whether a Standard is Exceeded".

5. "Sequential Analysis when the Quality being Tested is Measured and when the Question is whether a Lot Differs from a Standard".

6. "Sequential Analysis of Variability of Quality about the Average".

Requests for copies of these sections should be addressed to Dr. Mina Rees, Technical Aid, Applied Mathematics Panel, NDRC, Room 5041, 350 Fifth Avenue, New York 1, New York.

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Most of the work using sequential analysis during the war has been in the field of inspection of material for acceptance or nonacceptance by the Armed Forces. There has been very little experience with sequential analysis in the field of biological experimentation. Any comments or suggestions on the use of sequential analysis in research should be addressed to W. Allen Wallis, Director of Research, Statistical Research Group, Columbia University, 401 West 118th Street, New York 27, New York. (Research Div., BuMed)

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Some Phases of Gynecologic Surgery: Doctors Masson, Counsellor, Waugh and Ferris in the "Annual Report on Gynecologic Surgery for 1944" at the Mayo Clinic discuss their management of certain pathologic lesions requiring surgical treatment.

Hysterectomy: Total abdominal, subtotal abdominal, vaginal, and Wertheim's were the operations performed.

Total abdominal hysterectomy was the favored operation but was not used routinely except in cases in which a malignant lesion was present. The question of total versus subtotal hysterectomy therefore arose only in the cases of benign lesions and the decisions rested upon the condition and mobility of the cervix and the depth of the vagina. A cervix which is badly diseased or lacerated should not be left as a stump. If the fascial attachments of the cervix have been stretched or torn to such an extent that extreme mobility or partial prolapse have resulted, a total hysterectomy is more effective and gives greater comfort to the patient than does a subtotal hysterectomy. If the cervix is normal in every respect as is usual in the nullipara, a subtotal hysterectomy may easily be the operation of choice. If the anterior vaginal wall is congenitally short or has been shortened by scar tissue, a total abdominal hysterectomy may result in greater shortening and fixation of the vaginal vault. The operation decided upon then will be determined by the other factors to be considered.

The application of the vaginal hysterectomy procedure has been greatly extended with great benefit to the patient reported. Previously this operation was used, in general, only in case of considerable procidentia in which the Mayo vaginal type of operation was required. Because the morbidity and mortality rate associated with vaginal hysterectomy are slightly less than they are with abdominal hysterectomy, there is a great inducement to use vaginal hysterectomy on a greater number of occasions, such as in cases of small fibroids, metritis, menopausal menorrhagia, recurring uterine and cervical polyps, carcinoma of the cervix in situ and uncontrolled functional bleeding. Vaginal hysterectomy is easily combined with correction of cystocele, urinary incontinence and rectocele. Patients who undergo only a vaginal hysterectomy without plastic repair may get out of bed any time after the second postoperative day.

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Wertheim's operation was performed in fourteen cases of carcinoma of the cervix without a death. This was regarded as a satisfactory achievement in view of the fact that the mortality rate for this operation at the Mayo Clinic and elsewhere was between 10 and 15 per cent in previous years. These fourteen patients were very carefully selected. In these operations, the lesions may be of any grade, but the stage of the lesions in these patients was 1 or 2.

Surgical treatment for carcinoma of the cervix should be viewed in the same perspective as the treatment of a carcinomatous lesion of any other organ. Lesions that are far advanced and have invaded distant tissues cannot be cured by operation. The same fundamental principle applies to this lesion, namely, that the earlier the lesion can be found and extirpated, the better the results will be. The excessive morbidity following the Wertheim hysterectomy has been practically eliminated by the use of sulfonamide compounds and penicillin.

Vulvectomy: This operation was performed on 24 patients. The presence of carcinoma was the reason for the operation in 11 patients; and the presence of irritating conditions which were regarded as precancerous was the reason in the other 13. Excision of the inguinal and femoral lymph nodes is not done routinely in cases in which vulvectomy is performed for carcinoma of the vulva. Those lesions situated in and around the clitoris are usually of the adenocarcinomatous type and advance rapidly. In some cases, epitheliomas, primarily of the vulva, may be invasive, and in such cases, dissection of the lymph nodes is advisable, either at the time of vulvectomy or shortly thereafter when the infection has subsided.

Vaginectomy: This is an operation of more importance than has been emphasized and is one of eradication and permanence. It is indicated in elderly patients who have complete procidentia with prolapse of the bladder and rectum. In these patients vaginal hysterectomy is combined with vaginectomy. This operation is distinctly indicated also for patients in whom prolapse of the vaginal vault has occurred years after a total abdominal hysterectomy has been performed.

Excision of Cervical Stump: Cervicitis, fibromyoma and prolapse are the three main conditions which usually require this procedure. The reporting doctors stated that of these three conditions cervicitis predominated, and that it was reasonable to assume that in most instances the infection was residual and had not developed after the subtotal hysterectomy. The number of patients with prolapse of the stump varies considerably from year to year. These patients become accustomed to considerable disability and are not anxious to submit to further operation unless it is strictly indicated. Ulceration, bleeding and inability to empty the bladder completely or to retain the stump by various pessaries are the causes for which they seek treatment.

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Construction of Artificial Vagina: Ten young women were operated upon because of congenital absence of the vagina. The McIndoe operation as modified by Counsellor was used. The results are considered good but not perfect, although better than those obtained by any other method. There is no mortality. The operation can be done in one stage and the postoperative convalescence requires about two weeks.

Comment on Certain Lesions: The ease with which vaginal hysterectomy can be performed in certain instances is the reason for electing it, and it is just as effective in removing the diseased organs as is total abdominal hysterectomy. It is performed immediately after dilatation and curettage.

Eight cases of carcinoma of the cervix treated by vaginal hysterectomy and six cases of carcinoma of the cervix treated by total abdominal hysterectomy were grades 3 and 4 in situ lesions. The reporting surgeons stated that they were especially interested in this group of patients since the treatment represented an attempt at cure of a deadly disease in its noninvasive stage by less radical methods. It was considered that a cure should be obtained in 100 per cent of these cases since in the past five years there had been no recurrence of that type of lesion in their experience. The opinion was expressed that carcinoma of the cervix remains in situ for many weeks before it becomes invasive and that there is a period of time when surgical treatment is most effective. In 21 cases biopsy only was performed and the patients were returned immediately to the Section on Radium Therapy because the lesions were considered not ammenable to any type of surgical treatment.

The frequency of occurrence of adenomyosis and endometriosis and the disability they usually produce cause them to be classified as major gynecologic lesions. Careful analysis of each patient is necessary for proper treatment. Surgical treatment is considered only when the disability from pain is prolonged. Out of 119 patients for whom surgery was chosen, only 27 could be treated by conservative operations. Vaginal or abdominal hysterectomy with removal of the adnexa if they were involved extensively was considered necessary in all the rest.

Few patients were seen who had primary dysmenorrhea of sufficient severity to justify surgical treatment. Most patients with primary dysmenorrhea will respond adequately to medical measures. In certain instances, nearly complete disability for prolonged periods becomes a serious economic factor. Resection of the presacral nerve was performed in eighteen cases. Thirteen were treated by hysterectomy. (Proc. Staff Meet. Mayo Clin., Dec. 12, '45)

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Accidental Transplantation of Cancer in the Operating Room: In 1908 Ryall recommended a complete change of gloves, drapes and instruments, and repreparation of the operative site after biopsy of a malignant tumor has been completed and the exploratory incision closed. This recommendation has been made repeatedly since then and especially emphasized by Ewing in 1933, and by Saphir in 1936 when he found on knife blades used for tumor biopsy the presence of viable cancer cells capable of transmitting the malignancy to other parts of the operative wound. Saphir's studies demonstrated in fact what had for many years been assumed.

Brandes, White and Sutton report the transplantation of a highly malignant carcinoma of the breast to an area on the left thigh from which a skin graft was taken to correct a deficiency incident to the mastectomy.

Following wide excision of the breast tumor mass by high frequency needle for diagnosis by frozen section, the patient was redraped, the operator and his assistants and instrument nurses changed to fresh gloves and gowns and another set of instruments was supplied. After radical mastectomy and before the Padgett skin graft was removed from the thigh with a dermatome, the operator's and assistants' gloves were washed in distilled water but were not changed.

The transplanted carcinoma was evidenced 4 months later at autopsy. Death had resulted from the effects of widespread bone and pulmonary metastases. The area of the thigh from which the skin graft had been taken was studded with discrete irregular nodules showing microscopically the same tumor structure as shown by frozen sections of the breast lesion when originally removed.

It seemed evident that contaminated rubber gloves caused the transplantation in this instance.

After this experience, the reporting doctors investigated the sediment obtained by centrifuging the sterile water or normal saline used in basins for glove rinsing during operations on patients with malignant growths and found well preserved tumor cells present. They experienced no difficulty in confirming the studies of Saphir, and also demonstrated tumor cells on clamps and tenacula used to grasp breast tumors or to catch bleeding vessels adjacent to them.

In the patient reported upon here the authors indicated that the preoperative findings, the manifestations subsequent to operation and the evidences at autopsy showed clearly that the carcinoma at the time of operation existed

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beyond the area of excision. The transplantation of the carcinoma to the thigh was, therefore, of no especial consequence, but the mechanisms involved in the case serve to stress certain fundamentals carefully to be observed in undertaking the treatment of malignant growths. (Surg. Gynec. & Obst., Feb. '46)

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Comparison of Navy Radium Plaque Adaptometer and Shadowgraph Modification of Evelyn Night Vision Trainer: The results and conclusions of three recently completed studies (X472-4, X558 and X582) are as follows:

1. A greater percentage of individuals will pass the Navy Radium Plaque Adaptometer test if they have previously received night vision training on the Evelyn Trainer.

2. Many individuals who fail in the Evelyn Trainer Shadowgraph test also fail in the Radium Plaque Adaptometer test.

3. Some individuals who stated that they saw all the objects during the night vision training course failed in both the Shadowgraph test and Radium Plaque Adaptometer test. This result makes uncertain the degree of reliance that can be placed in the statements of an individual of a group because (a) often he will not admit that he is less skillful than the other members of a group, and (b) conversely a motive may exist in an individual to represent the visual perception in terms aberrant from the actual experience.

4. The Navy Radium Plaque Adaptometer is a reliable instrument for the purpose of detecting those individuals who have insufficient visual acuity to see the objects cast on the screen by the Evelyn Night Vision Trainer. (Research Div., BuMed)

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Effect of BAL in Man: The effects of BAL by intramuscular injection were studied in 9 human subjects with secondary or tertiary lues. The conclusions were based on the results from 28 injections of single doses of from 3 to 8 mg. per kg.

In man BAL produces paresthesias (burning or tingling of the nose, eyes, mouth, and skin), perspiration and sense of warmth, pain (limbs, jaws, abdomen, head), lacrimation, blepharospasm, salivation, vomiting, unrest, apprehension, weakness, and fatigue. The heart rate is accelerated and both systolic and diastolic blood pressure are usually increased.

The minimal effective dose lies between 3 and 5 mg. per kg. A single dose of 8 mg. per kg. produces marked symptoms. The effects of doses up to 8 mg. per kg. are completely reversible, the reactions lasting only about an hour or two. Doses of 5 mg. per kg. may be given at intervals of three hours without significant cumulation. There is some indication that tolerance develops to repeated doses. (OEMcmr-245, Gold and Cattell, Cornell Univ., Ms. for publication - CMR Bulletin #73)

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BAL in Experimental Arsenic Poisoning: BAL (2,3-Dithiopropanol) injected subcutaneously, intramuscularly, or intravenously in aqueous or propylene glycol solution, proved effective in the treatment of acute and subacute mapharsen poisoning in rabbits.

The antidotal action of BAL was referable to its ability to remove the arsenical from its combination with cells, with the excretion of the stable and relatively nontoxic thioarsenite so formed. Trypanosomes rapidly immobilized and apparently killed by arsenicals were resuscitated on the addition of BAL, due to the removal of the bound arsenic from the cell. Similarly, in rabbits injected with mapharsen, lewisite, or phenyl arsenoxide, the administration of BAL caused a striking increase in the rate of urinary arsenic excretion, in some cases exceeding 40-fold.

Although BAL was unstable in aqueous or propylene glycol solution, solutions in peanut oil could be sterilized by heat with only slight loss in activity. With the addition of 2 Gm. of benzyl benzoate for each Gm. of BAL, the latter was miscible with peanut oil in all proportions.

Such solutions in peanut oil and benzyl benzoate injected intramuscularly proved effective in the treatment of poisoning by mapharsen, lewisite, and phenyl arsenoxide in rabbits.

The widest margin of safety between the effective and toxic levels of BAL so administered was provided by a schedule involving 4 injections at 4-hour intervals, followed in some cases by daily injections for 6 days. On this schedule, individual doses of from 1 to 10 mg. of BAL per kg. saved more than half of the animals injected with lethal doses of mapharsen, lewisite, or phenyl arsenoxide. Since the maximum tolerated dose of BAL so injected was 35 mg. per kg., the margin of safety provided was sufficiently large to indicate the feasibility of its use in man. (OEMcmr-215, Eagle et al., Johns Hopkins Univ., Ms. for publication - CMR Bulletin #73)

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BAL in Clinical Arsenic Poisoning: BAL dissolved in peanut oil with benzyl benzoate may be injected intramuscularly in man in individual doses of from 2.5 to 4 mg. per kg. repeated at 4-hour intervals. At higher dosages, an undue proportion of injections is followed by transient toxic reactions.

In 48 cases of arsenical encephalitis treated with BAL the over-all mortality was 23 per cent. All of 15 relatively mild cases recovered completely within from 1 to 4 days. In 33 comatose or convulsive cases, the results varied with the time elapsed since the development of cerebral symptoms. The mortality in 24 cases adequately treated with BAL from 1/2 to 6 hours after the development of symptoms was 20 per cent; while of 9 cases in whom treatment was delayed for an average of 30 hours, 5 were fatal. In general, the patients who recovered usually showed definite improvement in from 1 to 2 days and completely recovered in an average of 4 days.

In 63 cases of arsenical dermatitis, of which 38 were typical cases of exfoliative dermatitis, the administration of BAL usually stopped the progression of the inflammatory reaction, and accelerated the healing process. The average time for from 75 to 90 per cent recovery was 13 days.

In 10 of 11 cases of arsenical agranulocytosis the administration of BAL was followed by an increase in the total white blood cell count, and a striking increase in the proportion and total number of polymorphonuclear leucocytes.

In 3 patients who had in error received massive doses of arsenical (0.6, 0.4, and 0.4 Gm. oxyphenarsine) the administration of BAL was followed by prompt symptomatic relief, and there were no late serious toxic complications. A fourth patient who received inadequate treatment with BAL after the single administration of 1200 mg. of oxyphenarsine hydrochloride died on the seventh day.

In 20 patients with a marked febrile reaction occurring as a complication of arsenotherapy, often associated with a toxic rash, the administration of BAL was followed by a drop in temperature and the disappearance of associated subjective symptoms, with complete recovery in from 24 to 48 hours.

BAL had no therapeutic effect in 3 cases of aplastic anemia, in 8 of 9 cases of so-called arsenical jaundice, or in 2 patients with a dermatosis following prolonged administration of Fowler's solution.

The urinary excretion of arsenic was studied in 6 normal subjects, in 13 patients with arsenical dermatitis treated with BAL an average of 12 days after the last arsenical injection, and in 12 subjects given BAL from 6 to 72 hours after the inhalation of minute amounts of an arsenical smoke. In all the groups, the administration of BAL was followed by an increased urinary

excretion of arsenic in approximately half the patients, and by a relatively insignificant increase, or no demonstrable change, in the other half.

The dosage of BAL in the cases so far treated has averaged from 500 to 700 mg. in the first 24 hours, and a total of from 1,000 to 1,500 mg. over a period of from 3 to 7 days. In no case has there been a systemic toxic reaction referable to BAL. In view of that fact, and the therapeutic results obtained with BAL, it is suggested that the dosage be increased, particularly in the serious manifestations of arsenical poisoning. (OEMcmr-215, Eagle and Magnuson, Johns Hopkins Univ., Ms. for publication - CMR Bulletin #73)

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Treatment of Acute Mercury Poisoning with BAL: Twenty-three cases of acute poisoning by mercury bichloride have been treated with intramuscular injections of BAL. Eight of these patients swallowed not more than 0.5 Gm. of mercury bichloride and treatment with BAL was started from 20 minutes to 3-1/2 hours later. All made a prompt recovery.

Six patients swallowed 1.0 Gm. Five of these were treated within from 1 to 3-1/2 hours, and all recovered within from 2 to 8 days. One patient of this group who was treated initially with small amounts of BAL 13 hours after taking 1.0 Gm. of mercury bichloride, died on the ninth hospital day.

Nine patients took from 1.5 to 20 Gm. of mercury bichloride. Five of these swallowed more than 1.5 Gm. Eight of these nine patients were treated with BAL from 1-1/4 to 3-1/2 hours after taking the mercury. They recovered completely in from 2-1/2 to 7 days. The other patient was first treated 19 hours after having swallowed at least 1.5 Gm. This patient was entirely well in 3 weeks.

The initial amount of BAL used for the first injection of 21 patients was 300 mg. (3 c.c. of a 10 per cent solution). Two patients, including the one who died, received an initial dose of only 150 mg. The latter patient received only 225 mg. in the first 12 hours. Twenty-one patients received from 450 to 750 mg. of BAL in the first 12 hours and a total of from 900 to 2,870 mg. in a period of from 3 to 4 days.

No toxic reactions attributable to BAL were observed in any instance except in the one patient receiving 2,870 mg. who experienced some tingling of the tongue following the last few intramuscular injections of 150 mg. each.

In acute mercury poisoning considerable importance is attached to the prompt treatment by BAL in an initial intramuscular injection of 300 mg.

followed within the first 12 hours by 2 or even 3 further injections of 150 mg. each. (OEMcmr-253, Longcope, Johns Hopkins Univ. - CMR Bulletin #73)

(This is the final report in a study of BAL in the treatment of acute mercury poisoning. Previous reports in this study have appeared in the Bumed News Letter of September 28, 1945 and January 18, 1946.)

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Motion Sickness: Studies on motion sickness were made at the California Institute of Technology and reported on by David B. Tyler. Sixty experiments were conducted on over 50,000 subjects. Here is a summary of the findings:

No "Placebo Effect" was noted. The incidence as well as the severity of sickness that developed in heterogenous groups of young men receiving a placebo was of the same order as that found in an untreated control group observed simultaneously. This is interpreted to indicate that there is no psychologic factor of importance in the causation of motion sickness.

In landing-craft operations the incidence and the severity of sickness were greatly reduced by changing the body position of the men. It was found that the incidence and degree were from 3 to 5 times greater in crouching men than in standing men.

Prostigmin preparations were without any demonstrable prophylactic effect. Hyoscine (0.6 mg.) alone, or in combination with barbiturates atropine or hyoscyamine, is very effective medication for the prevention of seasickness. The average protection was 60 per cent under conditions where up to 52 per cent of the men would be sick if untreated.

Barbiturates alone were effective prophylactically only under conditions in which the incidence of sickness was low or moderate. Where the sickness rate was high (30 per cent or above), the protective value of barbiturates alone fell off.

Before any remedy was tested for its efficacy in preventing seasickness, it was studied experimentally to determine whether the dosage to be employed had any demonstrable ill effects on marksmanship and combat performance even under conditions of stress in which men might be forced to stay awake for long periods of time.

It was shown that motion sickness preventives containing amytal significantly improved the marksmanship of unselected combat troops. (OSRD - CMR Proj. 282 and BuMed Research Div. Proj. X-256)

The Mode of Action of DDT: The action of DDT on insects and on shore crabs and crayfish is similar. It is highly toxic to these three organisms. It acts on peripheral nerves, especially nerve fibrils, and causes repetitive discharge. A single nerve impulse upon arriving at a DDT-treated region of motor nerve axon gives rise to a high-frequency volley of nerve impulses, and a tetanic contraction of the muscle results. The duration of the multiple-firing is longer up to a maximum of several seconds when higher concentrations of DDT are applied. Rhythmic spontaneous activity then occurs. Similar effects are produced by pyrethrins, veratrine and other unrelated compounds.

DDT also lowers the resting potential of nerve and the threshold to electrical stimulation.

Increasing the calcium-ion concentration in the environment of a DDT-treated nerve abolishes the DDT effects, but they reappear when the calcium is reduced to normal. It is suggested that DDT is adsorbed in traces at or near the surface of the nerve axon and acts as a barrier-layer that hinders the normal interaction of calcium-ions with the surface. The diversity of substances having similar effects indicates that the action is non-specific and physical rather than chemical. While this action appears to be the primary effect of DDT, other secondary changes may be of importance in causing the death of the organism. (OEMcmr-523, Welsh and Gordon, Harvard Univ., Abs. of paper for publication - NRC Bulletin #27)

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Report of Investigation of an Outbreak of Hematuria in Naval Personnel Aboard Ships at Wakayama, Japan: Commander Harms, medical officer of the USS PATOKA, anchored at Wakayama, had noted in a routine urine examination performed on November 3, the presence of red blood cells in the sediment after centrifuging. Similar findings in the urine of another individual induced him to examine a total of 245 specimens from personnel on the PATOKA. He reported finding red blood cells in all of these specimens. None of the individuals showed any clinical evidence of illness.

On the basis of these findings, a group from Epidemiology Unit No. 402 under the direction of Lt. Comdr. Ekermeyer was ordered to investigate. They obtained 15 urine samples from each of 28 ships then in the harbor, and found evidence of hematuria in one or more specimens from all but three ships. The possibility of bacterial contamination was ruled out at once by cultures and by the realization that pathogenic micro-organisms could hardly induce this type of outbreak. As a result of this epidemiological study, the conclusion was drawn that in all probability the outbreak was caused by

chemical contamination of the water distilled from the harbor for drinking and other purposes.

To provide confirmation of the laboratory findings, Commander Jacobson, laboratory officer of the USS BENEVOLENCE, was ordered from Yokosuka. He examined 110 urine specimens from 11 ships and found that 16 specimens showed red blood cells. It was thought that a similar outbreak might be occurring elsewhere, but dispatches from Kure and Sasebo reported that no significant findings were obtained in the examination of about 1000 urine specimens, except for the fact that on the USS ENOREE (A069) red blood cells were found in all of 25 specimens examined on 20 November, but none on 22 November or thereafter. The ENOREE had never been at Wakayama.

From the results of his studies Lt. Comdr. Ekermeyer of Epidemiology Unit No. 402 advised that all ships present empty all tanks containing water that had been distilled in Wakayama Harbor, that the tanks be washed, and that fresh water to be used for culinary or drinking purposes be distilled from water obtained at sea.

At about this time one man aboard the USS FLOYDS BAY developed gross hematuria; one aboard the USS LUZON was transferred to the USS CASCADE with a diagnosis of nephrosis based on the presence of hematuria, albuminuria, hypertension and generalized anasarca; and another also aboard the CASCADE, developed headache, fever, malaise, hematuria and albuminuria. All three patients were transferred to a hospital ship. As far as is known, these represent the only cases of urinary tract involvement presenting clinical symptoms.

In order to ensure the most expeditious solution of the problem being dealt with, CincPac ordered the U.S. Naval Medical Research Unit, No. 2, to dispatch to Wakayama a group of workers together with laboratory equipment.

Upon arrival of the NAMRU group, one worker supervised the examination of urine specimens from 711 individuals to determine the extent of the hematuria at that time. Red blood cells were found in the centrifuged sediment in 11 cases. A surprisingly large percentage showed an abnormally large number of polymorphonuclear leucocytes. However, albuminuria was detected only in rare instances by the method employing heat and acetic acid, a fact that testified to the very slight amount of hematuria present in those who were found to be affected. In order to determine whether or not there was any abnormality in circulating blood cells, blood from 20 individuals on two of the affected ships was examined. No significant abnormality was noted.

Investigation of potential sources of chemical pollution of the water revealed that there were several chemical and dye factories near the Waka Kawa and Kino Kawa, two principal streams emptying into Wakayama Harbor. Four chemical and four dye works as well as one tannery were visited. These were believed to be the only plants of any size that were not destroyed in the bombing during July. Chemical factories producing compounds used in the manufacture of explosives had been ordered to cease such activities early in September. One chemical factory, one dye works and the tannery were in limited operation. All except the tannery admitted having manufactured or employed aromatic amino or nitro compounds, many of which are known to be capable of inducing hematuria when ingested even in relatively weak concentrations. These compounds were detected by the group's chemist in the water of the Waka Kawa. Water from the Kino Kawa was tested for aromatic nitro compounds only, and such compounds were found to be present in relatively weak concentration. Even though a substantial amount of chemical may have been dumped at some time into these streams, it appeared unlikely that the harbor water could have become as widely polluted from such sources alone as it would necessarily have had to be at the time or previously to produce such an outbreak. Concurrently with this phase of the investigation examinations were made of the harbor water, of fresh water from various ships, of first effect scale from ships' stills and scale from pipes carrying fresh water. The sea water at the time of the NAMRU #2 investigation failed to reveal the presence of aromatic amino or nitro compounds. Furthermore, there was no evidence of aromatic amines in the fresh water or scale of any of the ships. However, material submitted from most of the ships, disclosed aromatic nitro compounds in various concentrations. The quantity was so great in some of the scale that it could be isolated and tentatively identified as picric acid.

The possibility of contamination of the water by dumped ammunition had been suggested to the NAMRU #2 group upon their arrival. The group chemist later learned that picric acid had been dumped somewhere in the vicinity. Further investigations revealed that crates of picric acid had been confiscated from a Japanese arsenal by our Army representatives. Because these crates dumped intact at sea might float ashore and there dry out and become a menace, it was decided to open each and dump its contents individually at sea. The possibility of poisoning the source of supply of distilled water for ships had not been considered. Over a period of six weeks beginning about 15 October, an amount of picric acid in excess of 100 tons had been released in an area at sea about 15 miles in a south-westerly direction from the Wakayama anchorage.

Being of low specific gravity, probably most of the picric acid remained near the surface and, carried by the tide currents, was pumped into the ship's evaporators and distilled over with the fresh water vapor in concentrations high enough to be absorbed on the scale and to render the water mildly poisonous,

as indicated by the development of hematuria in a large number of personnel aboard. The ingestion of picric acid, even in small amounts, is considered dangerous.

From the clinical standpoint, the outbreak of hematuria in naval personnel aboard ships at the Wakayama anchorage was essentially over by the time the NAMRU #2 group arrived there on 26 November 1945. For this reason it was necessary to view a large portion of the clinical picture in retrospect from information which was generously supplied by the medical officers and pharmacist's mates who were on duty on the various ships which had been in the harbor at the height of the outbreak and by Lt. Comdr. E. W. Ekermeyer of Epidemiology Unit #402.

From their analyses of urine specimens from personnel aboard the ships at the anchorage, it was immediately clear to the NAMRU #2 group that the outbreak had virtually subsided by the time of their arrival. They had been able to discover only a minimal number of red blood cells in the centrifuged sediments of urine specimens of eleven persons in a group of more than seven hundred men who represented roughly ten per cent of the naval personnel in the harbor. It was also clear that there had been little or no serious illness associated with the outbreak that far. However, for the reason that most of the evidence pointed to a toxic agent in the drinking water as the cause of the outbreak of hematuria, it was necessary to view the clinical situation with special reference to potential effects which might be produced by such an agent. Fortunately, it was early in the investigation that the epidemiological studies and chemical analyses allowed the assumption that one of the nitrocompounds tentatively identified as picric acid, which had gained access to the drinking water, was being dealt with. It was then possible to direct clinical studies and make interpretations on the basis of knowledge of the toxic properties of these compounds.

Clinically, it was quite clear that the outbreak of hematuria had been and still was manifested chiefly by the appearance of small numbers of red blood cells in the sediments of centrifuged specimens of urine. With the possible exception of three patients with diagnoses of renal disease, one each from the USS LUZON, USS FLOYDS BAY and USS CASCADE, who had been transferred to a hospital ship in Yokosuka on the day prior to the arrival of the group from NAMRU #2, no person had required admission to the sick list in connection with the outbreak, nor had gross hematuria been observed. As to these patients, no definite conclusions could be drawn whether or not their illnesses were the result of the agent which had been responsible for the microscopic hematuria among the ships' personnel. It is important, however, to note that the presence of albumin, casts and leucocytes in the urine had been observed only in these three.

The discovery of one of the nitro compounds, tentatively identified as and later proved to be picric acid, in the drinking-water systems of the ships in the harbor and in the urine of some of the personnel appeared to establish this agent as the probable cause of insult to the urinary tract. Considering the clinical picture on this basis, it was easy to reconstruct what seemed to be the course of events from the information at hand. Initially, the sudden introduction of this toxic agent into the drinking water had resulted in irritation of the genito-urinary tract. This is known to be one of the principal toxic effects of picric acid ingested in repeated small doses. It was evident that the effects were not severe, but involved a very high percentage of the personnel. However, as soon as it was recognized that chemical pollution of the ships' drinking water was the most probable cause of the outbreak, efforts were made to eliminate the agent from the water. Following this, there was a sharp decline in the outbreak, although it did not completely subside because of the persistence of the toxic agent in the evaporator scale and fresh-water pipes.

In summary, from the clinical standpoint, the outbreak of hematuria in naval personnel aboard ships in the Wakayama harbor, was widespread but mild. It reached its peak in the middle of November. It declined very sharply after efforts to eliminate the toxic agent from the drinking-water system were made. The outbreak manifested itself principally by microscopic hematuria with mild pyuria. Other evidence of disease of the urinary tract was encountered in only three cases whose relation to the outbreak is uncertain.

Aromatic amines or nitro compounds were suspected from the start of the study because of their known action in the production of hematuria and also because of their general tendency to be carried over in the vapor phase in the distillation of water. It seemed extremely unlikely that heavy metals would either be present in sufficient quantities in the harbor water or would be carried over in the distillation process. When the scale from the evaporators of some of the ships involved in the outbreak was tested for the presence of aromatic amines or nitro compounds, it was found that the aromatic nitro compounds were present in considerable amounts. At no time in the course of the study was the NAMRU #2 group able to detect any nitro compounds in the harbor water. Since a small amount of hematuria still persisted when the NAMRU group arrived, tests were made to determine if nitro compounds were present in the fresh water provided for drinking and cooking purposes. It was found that even though the water had been made on the high seas, a small but detectable amount of aromatic nitro compounds was still present in the water.

There was a correlation between the amount of picric acid in the scale of the evaporators and in the fresh-water system with the length of time

spent in the harbor and with the incidence of hematuria. The occurrence of picric acid in the urine of members of the crew of the ships was also correlated with the amount of picric acid in the evaporator scale and in the fresh-water systems of the ships. (N.M.R.U. #2, Preliminary and Final Report, Harris, Binkley and Chenoweth, Dec. '45)

Note: Copies of these reports in full may be had upon request to BuMed, Attention: Research Division.

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(Not Restricted)

Abstracts of Reports on Research Projects at the Naval Medical Research Institute, National Naval Medical Center, Bethesda, Maryland. (Full reports are available upon request.):

X-131 Dental Status of 71015 Naval Personnel at First Examination in 1942.

The number of persons showing simple and compound cavities and restorations, teeth missing and teeth to be extracted varied significantly according to their region of birth in the United States. The percentage of persons in the older groups with restorations (fillings) and missing teeth was greater, and with cavities and teeth to be extracted was less, than in the younger age groups.

NMRI-153 The Survival Time of Cysts of Endamoeba Histolytica in Sea Water.

Cysts of Endamoeba histolytica survived for from three to five days in sea water at 25° C. as compared with four to six days in physiological saline at the same temperature. It is concluded that the effect of sea water on cysts on E. histolytica is negligible and that polluted sea water constitutes a possible source of amebic infection.

X-352 Chemical and Physicochemical Studies on "Modified Globins" Prepared from Human Erythrocytes.

The conclusions resulting from this study are that (1) "Modified Globin" as prepared from normal human erythrocytes by Strumia and associates is relatively reproducible and of such molecular weight as to suggest its suitability for use as a "plasma substitute"; and (2) solutions of "modified globins" must be kept refrigerated since some become turbid very quickly at 37.8° C.

(Not Restricted)

X-462 An Evaluation of Some Organic Compounds and Salts of Heavy Metals in the Treatment of Avian Malaria.

With the exception of Forbisen and Carbarsone, a series of organic compounds and salts of arsenic, antimony, silver, lead, thorium, copper and mercury was found incapable of prolonging survival time of chicks infected with Plasmodium gallinaceum, or of affecting the exo-erythrocitic forms of the parasite. Colloidal antimony, administered intravenously, was equally ineffective. Forbisen and Carbarsone, like quinine, were effective only in suppressing the erythrocytic forms of the parasite.

X-479 Studies of Experimental Heat Rash.

For exploratory purposes, heat rash was produced in every member of 4 groups of men comprising a total of 27 individuals by subjecting them to temperatures ranging from 88° F. to 90° F. for 24 hours per day. The rash appeared as early as three days after entering the hot environment. When 17 hours or more each day were spent in a cool environment, the incidence of heat rash was greatly reduced. The effects of cold baths and ultraviolet radiations, and alterations in the blood, sweat, and skin elasticity were studied.

X-533 Evaluation of a Commercial Air Unit as a Meat Refrigerator Deodorant.

Studies were made to determine whether a commercial air unit met the claims: that it removed unpleasant odors from meat refrigerators; that it maintained the refrigerator walls free from condensed moisture and kept the humidity at a constant medium level.

The units tested failed to alter the odor level in a fresh meat refrigerator over a period of two and a half weeks. The same units failed to dehumidify the refrigerator air.

Note: All other such units designed for small and large-scale use that have been tested gave similar results.

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(Not Restricted)

Postgraduate Training of Medical Officers: Postgraduate training of naval medical officers has reached such an advanced stage that a brief resume of the over-all program is in order.

The plan provides for:

1. Advanced instruction leading to certification in the various medical and surgical specialties to be conducted in nine large naval hospitals which have been designated as special centers by the Surgeon General.

2. Postgraduate training of approximately 200 medical officers annually in civilian medical centers.

3. Refresher courses in naval hospitals and large dispensaries for the professional benefit of medical officers not desiring the longer and more formalized instruction.

4. Continuation of specialized training in such subjects as aviation medicine, medical aspects of submarine service and deep diving, field medicine, malariology, industrial medicine, epidemiology, tropical medicine, preventive medicine and naval administration.

5. Resumption on an augmented and advanced basis of the basic course given for many years at the Naval Medical School prior to its discontinuance early in World War II because of the need for getting doctors into the field with minimum delay.

In furtherance of the plan to train naval medical officers in the most modern procedures and technics, an estimated $150,000 would be spent annually for instruction of as many as 200 medical officers in surgery, internal medicine, radiology, obstetrics and gynecology, neuropsychiatry, ophthalmology and the other specialties. For many years it has been the practice of the Bureau of Medicine and Surgery to send medical officers to civilian medical centers for advanced instruction, but never before has it been planned on so large a scale. At the present time, a number of medical officers are assigned for instruction in the various specialties to the University of Pennsylvania, Northwestern University, Johns Hopkins University and other institutions. The length of these study courses ranges from one month to one year. Within recent weeks, residencies in neuropsychiatry have been approved and established at ten leading civilian institutions.

More than 250 medical officers are now receiving advanced instruction in naval hospitals at Bethesda, San Diego, St. Albans, Oakland, Great Lakes

(Not Restricted)

and elsewhere. The specialties represented include anesthesia, cardiology, dermatology, eye, ear, nose and throat, internal medicine, obstetrics and gynecology, pathology, photofluorography, proctology, neuropsychiatry, general surgery, neurosurgery, orthopedic surgery, plastic surgery, urology, radiology, aviation medicine and epidemiology.

A number of medical officers are enrolled in the postgraduate courses opened at the George Washington University School of Medicine in February and which will continue until April. (Professional Div., BuMed)

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(Not Restricted)

Examinations for Appointments as Assistant Surgeon and Acting Assistant Surgeon in the U. S. Navy: The Bureau of Medicine and Surgery will convene Boards of Medical Examiners and Supervisory Naval Examining Boards during the period 6 to 10 May 1946 at twenty-nine continental U. S. Naval Hospitals for the purpose of conducting physical and professional examinations of eligible candidates for appointment to the grades of Assistant Surgeon and Acting Assistant Surgeon in the U. S. Navy.

The primary purpose behind the setting up of these examinations for appointment to the grade of Assistant Surgeon has been to establish a channel of appointment for medical officers of the U. S. Naval Reserve who have not served on active duty in commissioned rank for a period of six months and, therefore, are not eligible to apply for transfer to the Regular Navy under the provisions of the currently effective transfer program which is outlined in detail in Bureau of Naval Personnel Circular Letter No. 288-45 (Revised). The medical officers of the Naval Reserve within this category are those who have been deferred from active duty under the provisions of the 9-9-9 program and whose total service in commissioned status has been purely inactive in that their training under the conditions of this program has been performed in civilian medical institutions. This is not intended, however, to exclude from participation in these examinations, doctors having no affiliation with the Navy, and it is desired to emphasize that applications are invited from all physicians who meet the requirements for appointment to the Medical Corps of the U. S. Navy.

The examinations to be conducted for appointment to the grade of Acting Assistant Surgeon for Naval internship will be a departure from the current system of intern appointments in that during the latter years of the war it was the practice of the Navy Department to appoint qualified medical school graduates to the rank of Lieutenant (jg), (MC), USNR for Naval intern training from a review of credentials submitted by candidates to the Bureau of

(Not Restricted)

Medicine and Surgery. In line with the schedule of demobilization and a transition to peacetime operations, it has been determined as necessary that the Bureau resume the pre-war procedure of professionally examining senior medical students for appointment to the grade of Acting Assistant Surgeon with the rank of Lieutenant (jg), (MC), USN, for Naval internship upon completion of their medical education, and thus insure the availability of an adequate number of properly qualified appointees at appropriate periods.

Candidates for appointment as Assistant Surgeon are required to be graduates of medical schools listed as approved by the Council on Medical Education and Hospitals of the American Medical Association who have completed their intern training in a civilian or naval hospital or who will complete such training within four months of the date of the examination, and who are physically and in other respects qualified.

Candidates for appointment as Acting Assistant Surgeon for intern training are required to be third or fourth year medical students enrolled in a medical school listed as approved by the Council on Medical Education and Hospitals of the American Medical Association. Third year medical students may apply only for an examination which will be held subsequent to the date of completion of their third year of medical school. If found to be physically, professionally and in other respects qualified, successful candidates will receive their appointments upon satisfactory completion of their medical school education.

Candidates for either appointment are required to be citizens of the United States and over 21 but less than 32 years in age at the time of appointment.

For further information and application forms, address the Bureau of Medicine and Surgery, Navy Department, Washington 25, D. C.

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(Not Restricted)

Review and Refresher Courses for Medical Officers Who Have Been Released from Active Duty: For the purpose of assisting in bringing potentially useful information to medical officers who have been or soon will be released from active duty, the following review and refresher courses are announced:

(Not Restricted)

George Washington University School of Medicine, Washington, D.C.

Graduate Courses	Length	Tuition	Starting Date
Pediatrics	4 weeks	$150.00	4 March 1946
Public Health	2 weeks	75.00	11 March 1946
Obstetrics and Gynecology	3 weeks	110.00	18 March 1946
General Surgery	3 weeks	125.00	25 March 1946
Anesthesia	1 week	50.00	8 April 1946

Harvard Medical School: This school offers a six-months' general review course in medical and surgical subjects. It is not intended that this course prepare the student for specialization. Morning hours will be devoted to pre-clinical subjects; afternoon sessions will provide supervised work with patients. Enrollment is possible for 5 or 6 men at monthly intervals. The tuition is $360.00 plus $15.00 for a medical fee.

Boston University School of Medicine: This school offers a six-months' refresher course in these special fields: Internal Medicine; General Surgery; Orthopedic Surgery; Obstetrics and Gynecology; Urology; Roentgenology, and Ear, Nose, and Throat. If there is a demand for pre-clinical subjects, they may be arranged. The tuition is $375.00.

American College of Chest Physicians: Under the auspices of the Illinois Chapter, this college offers a course in diseases of the chest at Michael Reese Hospital, Chicago, during the week of April 1-6 inclusive. Doctors may elect to follow this week's formal course with practical instruction in the fields of thoracic surgery, bronchoscopy, pneumonthorax, bronchography, and other methods and technics in the diagnosis and treatment of pulmonary disease. (The address of the American College of Chest Physicians is 500 North Dearborn Street, Chicago 10, Ill.)

It not being possible for the Navy to order reserve officers to these courses while on active duty or otherwise defray any expense incident to such training, it is necessary that those officers who may wish to enroll make arrangements directly with the institution concerned.

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(Not Restricted)

American Board of Ophthalmology - Preceptorships: In regard to the substitution of a preceptorship for residency in an ophthalmic hospital, the

(Not Restricted)

American Board of Ophthalmology has always accepted such training in favorable cases. During the present over-crowding of facilities, the Board expects to take a liberal attitude regarding the requirements for training.

It should, however, be pointed out that neither a residency nor a preceptorship suffices in itself to meet the requirements of the Board. Each case will still be judged on its merits in determining fitness for examination.

(This notice is for the information and guidance of medical officers who have already been or will be released from active duty. Those interested should obtain further important details by writing to Dr. S. Judd Beach, Secretary, American Board of Ophthalmology, 56 Ivie Road, Cape Cottage, Maine.)

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(Not Restricted)

U. S. Public Health Service: Examinations for permanent appointments of medical officers in the Regular Corps of the United States Public Health Service will begin on April 4 at various convenient localities throughout the country, Surgeon General Thomas Parran has announced. Examinations are for appointments to fill vacancies of Assistant Surgeon (First Lieutenant) and Senior Assistant Surgeon (Captain).

Doctors, now or soon to be released from active duty who are interested, should obtain further information and application forms by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C.

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(Not Restricted)

Course in Medical Statistics: The Bureau of Medicine and Surgery is arranging for the training of Medical Officers in the speciality of Medical Statistics at the School of Hygiene and Public Health of Johns Hopkins University. Medical Officers wishing to take this course should submit an application to the Chief of the Bureau of Medicine and Surgery. (Medical Statistics Div., BuMed)

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(Not Restricted)

Disestablishment of Naval Medical Activities. As published in the Navy Department Semimonthly Bulletin of 31 January 1946, the following Naval Medical activities were disestablished as of the dates shown:

Name	Address	Date of disestablishment
U.S. Naval Base Hospital #18	Guam Island, Marianas Islands	15 January 1946
U. S. Naval Special Hospital	Palm Beach, Florida	18 January 1946
U. S. Naval Special Hospital	Asheville, North Carolina	25 January 1946
U. S. Naval Special Hospital	Glenwood Springs, Colorado	30 January 1946

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(Not Restricted)

Establishment of U. S. Navy Medical Facilities, McGrew Point, Aiea Bay, Oahu, T. H.

To: All Ships and Stations. Op24B-pd
Serial 153P24

Subj: U. S. Navy Medical Facilities, McGrew Point, Aiea Bay, Oahu, T. H. 28 January 1946

1. The U. S. Navy Medical Facilities at McGrew Point, Aiea Bay, Oahu, Territory of Hawaii, are hereby established under a medical officer in command, and designated as follows:

U. S. Naval Fleet Service Dispensary,
McGrew Point,
Aiea Bay, Territory of Hawaii.
Mail Address
Navy 128,
Fleet Post Office,
San Francisco, California. 2829-020

This is a subordinate component of the U. S. Naval Base, Pearl Harbor, Hawaii, and is an activity of the Fourteenth Naval District under the technical control of the Bureau of Medicine and Surgery.

2. Bureaus and offices concerned take necessary action.

--SecNav. James Forrestal.

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(Not Restricted)

To: All Ships and Stations. Op-414-B-RW
Serial 214P414

Subj: Insecticide Concentrate Emulsion (DDT-Xylene-Emulsifying Agent), Federal Standard Stock Catalog No. 51-I-157-500 - Prohibition of Shipboard Use of. 14 January 1946

(Not Restricted)

Ref: (a) BuMed ltr. BuMed-Y-EVR, L8-2/P2-3, of 17 Dec. 1945.

1. Based on the recommendation submitted in reference (a) the use of insecticide concentrate emulsion (DDT-Xylene-Emulsifying Agent), Federal Standard Stock Catalog No. 51-I-157-500 is hereby prohibited aboard all naval vessels.

2. The Bureau of Medicine and Surgery is conducting research on a water dispersible form of DDT and it is expected that the Bureau will in the near future be in a position to recommend the adoption of a noninflammable, nonexplosive DDT insecticide which will be most desirable for shipboard use.

--OpNav. W. S. Farber.

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Circular Letter 46 -14

(Not Restricted)
BuMed-D-EFB
S37-2/A16-1
17 January 1946

To: All Stations Continental U. S.

Subj: Policy Relative to Mobile Prosthetic Dental Units; Procurement, Assignment, Personnel and Operation of

1. The Bureau of Medicine and Surgery has acquired one mobile prosthetic dental unit similar in design to the mobile dental units (operative) now in use in most of the continental naval districts. This unit has been tested and is now available for use in the naval districts.

2. Administrative control of the subject unit and such additional units of this type as may be acquired shall be vested in the Bureau of Medicine and Surgery. This authority shall extend to the assignment and transfer of mobile prosthetic dental units, the selection of types of apparatus and equipment to be used, the approval or disapproval of requests for the procurement of all accessory equipment for these units, the training of officer personnel of the units, the supervision of the technical and professional quality of the prosthetic dental restorations, the establishment of itineraries between naval districts, and the control of other movements of these units.

3. The Bureau of Medicine and Surgery will approve specifications for such additional mobile prosthetic dental units and accessory equipment as may be required.

4. The Bureau of Medicine and Surgery will make recommendations to the Bureau of Naval Personnel for the assignment of suitable officer and enlisted personnel to the units, and for the issuance of travel orders to the operational personnel of the mobile units.

5. When requested, mobile prosthetic dental units will be ordered to report to district commandants for duty, if available. Immediately upon reporting to the naval district, the dental officer in charge of the unit shall consult with the

(Not Restricted)

district dental officer and determine the itinerary, copies of which will be forwarded to the Bureau of Medicine and Surgery and to all interested activities within the district. When inclusion of nearby stations in adjoining districts would result in saving of time and expense, such stations should be included in the itinerary subject to the approval of the district commandants concerned.

6. The Medical Department activity to which the unit is permanently assigned will be responsible for the cost of gasoline, oil, repairs, and upkeep. While in travel status, the dental officer in charge of the unit should be furnished with the necessary credit cards, forms and certificates for the procurement of necessary gasoline, oil, tire repairs, etc., for use in obtaining such items if they are not available at the stations visited.

--BuMed. Ross T. McIntire.

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Circular Letter 46-18

(Not Restricted)
BuMed-PDP-MLB
ND/A3-1
18 January 1946

To: All Shore Stations.

Subj: Command Relationships of BuMed Activities to Naval Districts.

Ref: (a) SecNav ltr. Op13-1C-jc, serial 221713, of 4 June 1945; AS&SL Jan.-June 1945, 45-608, p. 76.
(b) Art. 457, Navy Regulations.

1. Reference (a) set forth a break-down of the several factors composing subject relationships, defined the factors, and promulgated the assignment of these factors to certain jurisdictions.

2. In accordance with reference (a), and as concerns activities under the cognizance of this Bureau, the assignment of the following factors of command relationship is made:

(a) As required by reference (a), military command and coordination control are assigned to the district commandant.
(b) As provided by reference (a) management and technical control shall remain lodged in BuMed.

3. In accordance with reference (b), activities under the management control of this Bureau embrace the following classes:

(Not Restricted)

(a) Naval hospitals
(b) Naval special hospitals
(c) Naval fleet hospitals
(d) Naval base hospitals
(e) Naval medical centers
(f) Naval medical supply depots
(g) Naval medical supply storehouses
(h) Naval schools (Hospital Corps)
(i) Naval dispensaries (so designated by SecNav)
(j) Naval Medical School
(k) Naval Dental School
(l) Naval School of Hospital Administration
(m) Naval Medical Research Institute
(n) Naval medical research units
(o) Naval medical units

4. Activities under the technical control of this Bureau embrace the classes delineated under paragraph 3 above and, in addition, the medical departments of all stations.

--BuMed. Ross T. McIntire.

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(Not Restricted)
BuMed:TW:FL
QB/L11-3
18 January 1946

Circular Letter 46-20

To: All Naval Stations and Marine Corps Stations Having Medical Department Activities.

Subj: BuMed Excess Property, Redistribution and Disposal of.

Ref: (a) BuMed ltr. BuMed-T, QB/L11-3, of 3 Dec. 1945.
(b) Navy Property Redistribution and Disposal Regulation No. 1, of 15 Oct. 1945.
(c) BuMed ltr. BuMed:TW:FL, QB/L11-3, of 11 Sept. 1945.

Enc: (A) Suggestions for Material Preservation.

1. Reference (a) is hereby canceled.

2. Reference (b) is authority for, and describes the manner of, disposition of excess property at naval activities within the continental United States. This letter supplements reference (b) but does not modify it.

3. U. S. NAVAL AND U. S. MARINE CORPS STATIONS OR ACTIVITIES REMAINING IN COMMISSION.

(Not Restricted)

After a station or activity which is to remain in commission reports excess BuMed property, this property remains in custody of holding activity. It shall not be moved from the reporting activity, nor be used, or be otherwise disposed of, without prior authority of BuMed Materiel Division, Sands and Pearl Sts., Brooklyn 1, N. Y., or of the Navy Material Redistribution and Disposal Administration, Material Redistribution and Disposal Office, or Disposal Agency (Reconstruction Finance Corporation). If at the end of 90 days no known action has been taken on the report of excess property, BuMed Materiel Division (attention: Surplus Property Officer), will be so informed, referencing the SPB-1 form, number and date. All reported property must be held by reporting activity until final action is completed, whether by redistribution, sale, surveyed for disposal as scrap or salvage, for abandonment, or for destruction.

4. U. S. NAVAL AND U. S. MARINE CORPS STATIONS OR ACTIVITIES REDUCED TO MAINTENANCE OR CARETAKER STATUS.

When a station or activity reverts to maintenance or caretaker status the following steps shall be taken:

(a) Inventory all supplies and equipment.
(b) Survey missing equipment and forward report to BuMed, Materiel Division, for approval.
(c) Make necessary repairs and adjustments to installed and heavy equipment either by activity maintenance force or informal contract and purchase order through nearest Navy purchasing agency. All this equipment shall be protected against rust and other deterioration and left in place. Surveyed linen should be used as dust covers.
(d) Survey as scrap or salvage to BuMed, Materiel Division, on Form NavSandA 154 all equipment which is obsolete or requires extensive repairs, listing each item and giving exact condition.
(e) Transfer to a contiguous Navy, Army, or Veterans' Administration activity all broken lots or opened bottles and packages of supplies.
(f) Dispose of dangerous drug (ref. (c)).
(g) Ship to nearest naval medical supply depot or naval medical supply storehouse all dental gold; narcotics; other exempt items (see par. 606.6, ref. (b)); highly inflammable drugs; items subject to deterioration or freezing; and biologicals and X-ray films with an expiration date longer than 6 months beyond date of shipment. Transfer shall be effected in accordance with reference (b). Supplies with less than 6 months remaining potency date (as printed on the package) shall be transferred to a contiguous Navy, Army, or Veterans' Administration activity.
(h) Report to BuMed, Materiel Division, on Form SPB-1 all property considered in excess of requirements of station at operating status.

(Not Restricted)

(i) Pack and case, after necessary preservation methods have been used, all remaining small items of stores and equipment and stow securely in medical spaces. Secure to outside lid of each case an inventory of the contents.

(j) Retain in conspicuous place in SMO office inventory of all supplies and equipment left on hand. Forward to district medical officer original of inventory with letter of transmittal.

Note: The technical advice of the activity maintenance officer will be requested as to types of preservatives, dehumidifying agents, and rust preventives to be used in carrying out the provisions of subparagraphs 3 (c) and 3 (i) above. Preservatives, dehumidifying agents, and rust preventives will be obtained from the local maintenance officer and are a proper charge against the activity maintenance appropriation.

5. U. S. NAVAL AND U. S. MARINE CORPS STATIONS TO BE TOTALLY DECOMMISSIONED AND PREMISES VACATED.

When an activity is to be decommissioned and the occupied premises are to be ultimately vacated at a future indefinite date the following steps shall be taken:

(a) Survey all missing equipment and forward report to BuMed, Materiel Division, for approval.

(b) Dispose of dangerous drugs (ref. (c)).

(c) Report to BuMed, Materiel Division, on Form NavSandA 154 all property which, because of obsolescence or need of extensive repairs, is recommended for disposal as salvage or scrap.

(d) Report all BuMed property in "fit-for-issue condition" on Form SPB-1 to BuMed Materiel Division, in sufficient time for orderly disposal by BuMed, Materiel Division. Care must be used to give complete description and exact condition on these reports which shall be submitted as soon as the decommissioning date if officially known.

(e) If all officers of the Medical Department are detached prior to final disposal of property, custody of property shall be transferred to commanding officer or officer in charge of the station. This officer should request from the district commandant the retention of sufficient experienced Hospital Corps petty officers to assist in disposal of residual property.

When naval activities which are to be decommissioned are in leased spaces and property must be entirely vacated by an assigned deadline the following steps shall be taken:

(1) Carry out directions of paragraph 4(a), 4(b), 4(c), and 4(d), of this letter.

(Not Restricted)

Dates of availability of property and date on which activity must be cleared shall be given on Form SPB-1 or letter of transmittal. These reports shall be forwarded as early as possible to insure orderly disposal.

(2) Fourteen days prior to date on which premises must be vacated by the Navy all property on which no disposal action has been directed shall be packed properly and shipped to the nearest naval medical supply depot or naval medical supply storehouse. Cases shall be marked "Returned Stores." Packing and handling are a proper charge against the appropriation Maintenance, Bureau of Supplies and Accounts.

(3) No installed equipment shall be removed from leased spaces until the senior medical officer ascertains from the commanding officer that such equipment is not to remain in situ according to the terms of the lease.

6. When returned stores are received by elements of the medical supply system in accordance with instructions in this letter, such stores shall be examined for material condition. Items which are in "fit for issue" condition shall be taken into stock. Items requiring extensive repairs and drugs of doubtful quality shall be surveyed with recommendation that items be disposed of as salvage or scrap to authorized local sales officer or destroyed as dangerous drugs.

7. At major shore stations to be decommissioned where amount of property involved is large and where complex disposal situations exist, technical officers operating at bureau level are available for assignment on temporary duty to assist in property disposal. Commands of 11th, 12th, and 13th Naval Districts should direct request for BuMed advisers to Medical Officer in Command, U. S. Naval Medical Supply Depot, Oakland, California. Commands in other continental U. S. naval districts should direct request to Chief of Materiel Division, BuMed, Sands and Pearl Sts., Brooklyn 1, New York.

--BuMed. Ross T. McIntire.

Enclosure (A)

MATERIAL PRESERVATION

The following suggestions are made for processing Medical Department material which is to remain on hand.

Metallic parts of surgical instruments and other metallic material shall be:

Cleaned of dirt, oil, grease, or rust by use of Petroleum Dry Cleaning Solvent known as Stoddard Solvent (Standard Stock Catalog No. 51-C-1326-75) and thoroughly dried.

(Not Restricted)

Oiled by dipping or spraying as practical with Grade 2 Thin Film Rust-Preventive compound (Polar Type) (Standard Stock Catalog No. 52-C-3257-30).

Stowed under cover in regular stowage places protected by dehumidification where climatic conditions require dehumidification.

Electric motors.

Cleaned by removal of any accumulated oil and dust from windings, and insulating varnish applied after thoroughly dried under dehumidification. Metal housing to be painted or sprayed with Grade 2 Thin Film Rust-Preventive compound (Polar Type).

Stowed in regular stowage spaces and protected by dehumidification where climatic conditions require dehumidification. Other material shall be stowed in regular storage spaces.

Further information regarding preservation of material may be obtained from Bureau of Ships Manual, chapter 9, Readiness and Care of Vessels in Inactive Status (tentative draft of 4/28/44 revision No. 5 of 5/25/45).

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(Not Restricted)
BuMed-D-HM
P5-2
22 January 1946

Circular Letter 46-25

To: All Ships.

Subj: Field Medical Unit No. 35C, Chest, Dental (for Emergency Repair of Vulcanite and Resin Dentures), Stock Number 14-189, Supply Catalog, Medical Department, U. S. Navy - Issuance of.

1. Reports from dental activities afloat indicate that there is a definite need for the subject item to accomplish emergency repair of vulcanite and resin dentures. All ships having a dental officer but not an authorized dental prosthetic activity are hereby authorized, if needed, to requisition subject item on NavMed Form-4.

2. The report of dental treatment accomplished with this unit should be reported on NavMed K. The submission of NavMed 610 and Forms L will not be necessary.

3. This directive authorizes only emergency prosthetic dental treatment which can be accomplished with the materials supplied in subject item. Equipment and supplies for the accomplishment of complete prosthetic dental treatment will be issued only upon approval of this Bureau.

--BuMed. Ross T. McIntire.

Circular Letter 46-36

(Not Restricted)

To: All Ships and Stations. BUMED:MN:LLS:OG
6 February 1946

Subj: Nurse Corps Separation; Information Relative to.

1. RELEASE OF REGULAR NURSE CORPS OFFICERS AND RESERVE CORPS HARDSHIP CASES

a. Nurse Corps officers who are not eligible for release without prior authority from the Bureau of Medicine and Surgery and who must await Bureau of Naval Personnel orders for release are now being ordered by the Bureau of Naval Personnel to an appropriate Separation Unit (WR) for separation processing, if the request for release is approved by this Bureau.

b. Requests for release directed to this Bureau should state the officer's home of record, and the place from which ordered to active duty. If the Nurse Corps officer requests release at a Separation Unit (WR) other than the unit serving the area of her home of record and this request has been properly substantiated, the commanding officer should so indicate in his endorsement.

2. CHANGE OF NAME PRIOR TO RELEASE FOR MARRIAGE

a. In many instances Nurse Corps officers are being sent to Separation Units for release for reason of marriage with orders and pay records which are carried in their maiden names.

b. An officer of the Nurse Corps who is eligible for release by reason of marriage is directed by ALNAV 339-45 to submit a request for change of name and proof of marriage to the Chief of the Bureau of Medicine and Surgery, if such request has not previously been submitted. The resignation accompaning a request for change of name should be submitted in the married name of the officer.

c. When a request for change of name has been submitted to the Bureau it is assumed by the Bureau that all records pertaining to that officer, including all records at her station of duty, have been changed and she will henceforth be known and recorded in all official communications by the name so reported. The endorsement of the request by the commanding officer should show that such change has been made on all records under his cognizance. Compliance with the above procedure will facilitate the processing of Nurse Corps officers at the Separation Units and avoid delay occasioned in changing the name on records after the officer arrives at a Separation Unit.

3. FORWARDING OF LETTERS OF APPOINTMENT

a. Except in cases of Retirement, original letters of appointment should NOT

(Not Restricted)

be forwarded to this Bureau, but should be retained by the officer upon her release.

4. REPORTING OF LEAVE OF ABSENCE

a. A Report of Leave of Absence (NavPers Form 321) should be forwarded to this Bureau by the naval activity to which a Nurse Corps officer reports for permanent duty at the expiration of accumulated leave taken and granted by the authority contained in ALNAV 256-45.

--BuMed. Ross T. McIntire.

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Circular Letter 46-38

(Not Restricted)
BUMED:Y:jit
A3-3/EN10(A)
8 Feb 1946

To: All Ships and Stations.

Subj: Annual Syphilis Report, NavMed A (Revised 8/45), Proper Completion of.

Ref: (a) All Ships and Stations ltr. BUMED-Y-avr A3-3/EN10(A), dated 4 October 1945, (ND Bull, Item 45-1432).

'tention is called to the fact that many of the subject reports received by Bureau for 1945 have been improperly completed.

2. It is directed that instructions contained in ref (a) be carefully read and followed, especially as regards:

(a) Breaking down of syphilis cases into negro and all others.
(b) Indicating number of doses of arsenicals administered (size of dose not required).
(c) Indicating number of courses of penicillin administered. (A completed course of penicillin for purposes of this report is 2,400,000 units.)

3. Activities which have submitted the old form NavMed A for the year 1945 are requested to obtain the revised form and resubmit the report as soon as practicable.

--BuMed. Ross T. McIntire.

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